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ABSTRACT

The rapid expansion of online publications has raised some concerns about the use of online databases in comparison with using traditional print publications. To determine the opinions of end users about using Dialog online databases versus their corresponding print versions, three libraries in Atlanta, Georgia--Atlanta-Fulton Public Library, Emory University Library, and Georgia State University Library--were surveyed. The survey results reveal that the users' habits and position are a determining factor in their opinions about online databases or print materials. The survey results also indicated that online users have not changed their views toward online information systems although information technology has greatly advanced in recent years. It is observed that online searching must be made simpler, more standardized, and geared more toward the needs of the end user. A summary of the advantages and disadvantages of the use of traditional books and computer databases and a copy of the survey instrument together with a tally of the responses are appended. (33 references) (MAB)

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Online Vs. Print Publications: Users' Opinions

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ONLINE VS. PRINT PUBLICATIONS: USERS' OPINIONS

Chih Wang*

Abstract

Recently, online publications have grown rapidly. Many authors, however, have expressed their concerns and opinions about using the new products in comparison with using the traditional print-on-paper publications. A study of selected Dialog online users was conducted to test these points of view. The result of the study has validated the opinions reported in the literature. Discussion and recommendations are followed.

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ONLINE VS. PRINT PUBLICATIONS:
USERS' OPINIONS

Literature Review

In the past two decades, electronic publishing and online information services have grown rapidly. As predicted, 40 million, or between 50% and 65% of, office employees in the United States today are using video display terminals (VDTs) on a daily basis.[1] Because of the importance of the new technology to research, education, and economy, the U. S. federal government has taken, in recent years, the initiative to develop high performance computers and information superhighways. When the new infrastructure is structured, thousands of college and university campuses, research laboratories, libraries, and information centers will be linked together. Computers will communicate with computers; information, bibliographic and graphic, can be transferred online with an instant speed.[2-4] The recent development will surely open a fascinating stage for electronic publishing and online information services.

The technological advancement has, so far, not satisfactorily overcome many human factors in interfacing with the new inventions. A great deal of concerns have been identified in the literature about using computer terminals. N. R. Fritz reports that because union leaders and researchers claim that VDTs can cause strain on the eyes, muscular discomfort, and headaches, Suffolk County in New York enacted in 1988 a law governing the use of VDTs in the workplace. The action has led other states considering similar legislation.[5] Many

other concerns deal with the glowing, flickering, and glaring screen;[6-8] the radiation,[9-13] and the real and potential health hazards[14-20] relative to VDTs.

While many concerns are concentrated on the health hazards pertaining to the use of VDTs, D. I. Raitt,[21,22] L. Auld,[23] R. M. Dougherty and W. P. Lougee;[24] N. Yankelovich, et al.;[25] A. Mauer, et al.,[26] and many other authors have also discussed, in an extended scope of the topic, the advantages and disadvantages about using the electronic or online products in comparison with using the traditional print-on-paper publications. H. R. Collier of Learned Information, Inc. claims that electronic delivery is faster than print delivered by mail, and online databases are easier to search than print products. He states that buyers can get exact information and pay for it on a per-item basis, and that electronic delivery can give far greater flexibility with regard to subsequent storage options.[27]

On the other hand, B. Katz, professor of library science at the State University of New York, Albany, taking electronic magazine as an example, notes that the new "magazine is both a dream and a nightmare." He complains about using computer terminals that (a) one cannot curl up with a computer; (b) computers have a habit of breaking down; (c) computer screens hurt eyes; and (d) computers require various directions to locate a message.[28] J. Rowley has compiled a summary and juxtaposition of the advantages and disadvantages concerning the use of traditional books and computer databases.[29] Her points are copied and attached in appendix A.

Purposes and Methodology

The above discussion of advantages and disadvantages is mostly

the expression of personal opinions. In the literature, no actual studies on the topic have been reported. Although a recent article reports that "users appeared to be quite satisfied with the substitution of online searching for the print abstracting and indexing services," the opinion was also the librarians' "belief," not the result of the p ll from the users.[30]

This brief survey was originated for the purpose of verifying the above personal opinions. The verification is particularly needed because of the dramatic changes of computer and information technologies in recent years, that may well accommodate the human factors with online information systems and effectively reverse the opinions of users. The results of the survey may provide useful information for online systems to consider improvement for their future products. In addition, they may also present to libraries and information centers essential data, which may help them think through when they are selecting information resources of various formats to satisfy the different needs of their users.

The survey involved three libraries in Atlanta, Georgia. They were Atlanta-Fulton Public Library, Emory University Library, and Georgia State University Library. A total of 33 subjects were included in the survey. They were the reference librarian and 10 Dialog endusers in each of the selected libraries. Five questions were given to the subjects asking their opinions about using online databases offered by Dialog information system and their corresponding versions in print form. The first question asked their overall opinions about reading on computer screens. The rest four questions asked the subjects about the advantages and disadvantages of using the two different versions of publications.

Data and Analysis

Except the first one, the subjects were requested to give five responses to each question. The responses were compiled, edited, categorized, and tallied when they were collected. The results are summarized in appendix B.

In reviewing the result, 15 or about half (45.45 %) of the respondents expressed that they did not like to read on computer screens, preferred to read texts in print, and needed hardcopies for record keeping. They said that reading on the screen was hard for their eyes and they were worried about costs and expenses when they were reading on it. On the other hand, only 5 or 15.15 % of the subjects were in favor of reading on the screen. They noted that searching online saved their time, they would know the contents of the result instantly, and it was faster and more convenient than searching with print indexes.

In answer to the question of the advantages of using online databases, a total of 105 points of advantages, or 63.63 % of the possible responses, were given. The most frequently mentioned points were that (1) searching online was quick, easy, and convenient (29 or 87.87 % of the subjects listed it). (2) It was efficient and of relatively low cost -- "You pay as you use it." One would obtain current and updated information from online databases (18 or 54.54 % of the subjects listed it). (3) Online databases covered a comprehensive and broad range of information (16 or 48.48 of the subjects listed it). (4) They provided Boolean search capability, and searching online would save time and effort (11 or 33.33 % of the subjects listed it). (5) Online databases were well-organized and offered

accurate information (8 or 24.24 % of the subjects listed it).

Other points of advantages of using online databases included the availability of printouts for search result. Three responses recognized the advantage of remote accessibility and the convenience of multiple access points. One subject pointed out that no one would tear out pages from online databases.

In response to the third question, 88 points of disadvantages, or 53.33 of the possible responses, of using online databases were reported. The most frequently noted disadvantages were the cost for using online databases (18 or 54.54 % of the subjects listed it). Other frequently reported disadvantages were that specific skills and knowledge were required to do online searching (13 or 39.39 % of the subjects listed it). False drops would occur and irrelevant references would be retrieved (10 or 30.30 % of the subjects listed it). It would take longer time than expected to receive result of online searching (8 or 24.24 % of the subjects listed it).

Many subjects also reported that searching online was not easy and friendly. One could not assume that the references retrieved from online databases were complete and useful. Users were required to have an ID and a password to access online databases. Online databases were still not well developed, particularly in the fields of social sciences and humanities; they had not covered well in retrospective information. There was no descriptor for many databases; little training was available to users; it was hard to browse on screen. Many databases were not updated and there were duplications.

The subjects of the survey reported 57 points, or 34.54 of the

possible responses, of advantages of using print publications. About one-third of them noted that print publications were user friendly; they were easy to use and browse; users were familiar with the traditional publications; usually no help was needed. They said that using print publications was free of charge to users; they would not have the pressure of cost for reviewing and thinking during searching. Print publications were well organized and accessible directly and immediately to users. Many subjects recognized the merit of historical as well as current references and the wide range of topics in print publications. They claimed that these publications were portable, permanent, having publishers' addresses, and able to be copied quickly.

A total of 55 points of disadvantages, or 33.33 % of the possible responses, were suggested with regard to using print publications. About one half of the subjects declared that they would spend much more time for searching print publications. Many of them found that print publications lacked cumulations and currency. They had to go to libraries for searching. These publications were bulky and cumbersome, did not have Boolean searching capability and complete coverage, and hard to read and understand. Some subjects mentioned the inconvenience of multi-volume and multi-year searching. There were also problems of matching users' vocabulary with indexing terms and delayed and missing publications.

Overall, the subjects in the survey expressed many more opinions on using online databases than on using print publications (193 vs. 112 points). Although they were generally in favor of using print publications, they listed many more points of advantages

of using online databases than those of using their corresponding versions in print form (105 or 63.63 % vs. 57 or 34.54 %). They also admitted many more points of advantages than disadvantages of online searching (105 or 63.63 % vs. 88 or 53.33 %), while they pointed out almost equal points of the advantages and disadvantages of using print forms (57 or 34.54 % vs. 55 or 33.33 %).

Discussion and Conclusion

In examining the users' opinions, it is obvious that some advantages and disadvantages are not directly related to the two forms of publishing but to the habit and position of users. For instance, these users have been used to reading and searching print-on-paper publications. They are familiar with different print indexes; and therefore, mostly they do not need help and training in using these print tools. On the other hand, online databases are new to most of them. They need to have training, skills, and knowledge to do online searching.

In the meantime, online searching is still not directly accessible to most endusers, who have to request librarians to do searching for them when needed. Print references are usually on open shelves and accessible when libraries are open. In addition, while print publications are traditionally free of charge to users, they still have to be paid for by institutions. It is not free for both forms of publishing. The actual cost and benefit of these publications will vary depending upon different situations.

Some of the advantages and disadvantages in using the two forms of publishing reported in this survey confirmed the opinions discussed by many authors mentioned above. These opinions include the

ease, quickness, and paying for it on a per-item basis in using electronic publishing.[31] The views of the portability of print books[32] and the physical inconvenience and uncomfortableness in using online databases[33] also substantiated the opinions stressed in various works. Obtained in this survey were other points of view which were not identified in the literature.

The result of the survey indicated that online users have not changed their views towards online information systems although information technology may have greatly advanced in recent years. It is, therefore, hoped that the designers of online systems, and particularly of computer terminals, would seriously look into the concerns reported in the literature and the opinions obtained in this survey. It would be ideal if they could strengthen the existing advantages of online systems to meet the needs of endusers. It is especially hoped that they would improve the system design and fee structure so that endusers would be comfortable to use these systems.

On the basis of the result of this survey and the opinions of many others, the conclusion can be drawn that searching online must be made simple and standardized. Users should not have extra burdens in doing their searches shifting from one system to another. New inventions must be sought to replace current computer screens. The new design should be able to accomodate users' habits of reading print on flat paper. An alternative way of charging must be constructed as well in order to relieve users from worry that the money-meter is running when they are searching online and thinking their next queries.

Many other innovations also need to be sought to improve online information systems, especially their computer terminals. On the other hand, it should recognize that it will take a longer time to modify human habits to adapt to the new technology. Looking forward, users of many generations later may only compare the latest computer technology with the earlier one, but not with traditional print products. The modification of human factors to adapt to the features of the new inventions will have to rely upon education and behavioral scientists to deal with. As for the cost of online databases, the issue may be solved when online databases are developed to the stage in which their charges are less than those of buying paperback books.

As indicated, it will need much longer time for users to accept satisfactorily online database products because of the limitation of technology and because of human factors in interfacing with the new invention. Users certainly like to have the quick search, fast delivery, and other features of online databases. They, however, also do not want to give up the portability, convenience, and other advantages of old acquaintances.

The dilemma to many libraries and information centers is the choices between the new and traditional publications to satisfy the overall needs of their users. The way to solve the problem will vary depending upon the missions of each institution, the availability of financial resources and physical facilities, the number of users of each organization, the characteristics and different levels of users, etc. No easy and simple answer to the problem can be found. The challenge will completely rely upon the wisdom and managerial art of individual library and information leaders to deal with.

Note that the study did not include the detailed data of ages, educational levels, and other demographical factors of the subjects of the survey. Further analyses of these variances may provide other information. Also note that the current study limited itself with online and print databases. It did not involve optical products. It is obvious that CD-ROM information tools have become popular in recent years. A similar study involving optical products may offer different and important information.

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Appendix A
ADVANTAGES AND DISADVANTAGES OF THE BOOK
AND COMPUTER DATABASES
By Jenny Rowley

The Book	Computer Databases
1. Relative low density of data storage.	High density of data storage.
2. Very portable, except in large numbers	Portable, but needs careful handling.
3. Will survive most environments, although life depends on quality of paper, binding, etc.	Subject to deterioration and even erasure in some environments.
4. Can be read without intermediate equipment (except spectacles).	Needs additional equipment to convert to format suitable for human reading. Ease of reading depends on this equipment and its accessibility.
5. Can be read in an armchair, a desk, in the bath, or wherever convenient.	Reading must be conducted in an upright sitting position at the computer terminal, unless printed text is generated. Computer terminals must be connected to other equipment and are not generally regarded as portable.
6. Several can be used simultaneously and compared.	Comparing two or more databases or parts thereof means flicking between two sets of text on the screen.

7. Can be scanned in order to judge whatever is covered in the following few pages, and to review the plan of the book.	The ease with which this can be accomplished depends on the system. Additional terminals would, naturally, facilitate readier comparison. Scanning is possible, but usually must be sequential and thus can be slow.
8. Its diagrams and illustrations can be used to amplify and elucidate points.	Diagrams are sometimes available with a terminal with graphic facilities, but pictures cannot be faithfully reproduced.
9. Can be a work of art, with both a tactile and visual appeal.	Computer terminals are distinctly limited in this respect. All efforts at improving display of text are rooted in functionality.

Appendix B
SURVEY OF USERS' OPINIONS ON ONLINE
AND PRINT PUBLICATIONS
(N = 33)

Questions	No. of Responses	%
1. **What are your opinions about reading on screen**?		
- Favorable: faster, convenient, save time, know contents instantly.	5	15.15
- Unfavorable: do not like to read on screen, prefer to read text in print, need hard copies for records, hard for eyes, worry about costs, expensive.	15	45.45
2. **What are the advantages of using online databases**?		
- Quick, easy and convenient to search.	29	87.87
- Saving time and effort.	11	33.33
- Comprehensive and broad coverage of information; indexing journals not indexed in print sources.	16	48.48
- Current and updated; efficient and relatively low cost; you pay as you use it.	18	54.54
- Capability of Boolean search; searching can be exhaustive, defined, or manipulated; complex subjects and various years of information can be searched by one command.	11	33.33
- Capability of remote access; accessible when libraries are closed.	3	9.09
- Availability of printouts; reducing errors of transcription.	5	15.15
- Accurate; well organized; having abstracts.	8	24.24
- Can be searched with various access points; easier to eliminate irrelevant references.	3	9.09

-	No one can tear out pages.	1	3.03
Sum		105	63.63*

3. **What are the disadvantages of using online databases?**

-	High cost.	18	54.54
-	Inaccuracy of citations -- false drops or irrelevant references.	10	30.30
-	Not as easy and friendly to use as print sources -- variations in descriptors and searching protocols of various databases, complexity of searching operations, etc.	7	21.21
-	Requiring specific skills and knowledge -- the Boolean theory, subject specialties, choice of correct keywords or terms, etc.	13	39.39
-	Inconvenient -- users need to have ID and password to access databases, must go to a library to do searching, need a librarian to help.	5	15.15
-	Omissions in coverage -- lack of retrospective information, not well developed particularly in social sciences and humanities.	5	15.15
-	Actual time to receive cited materials not as fast as expected -- waiting for an appointment to do searches; searches need to be processed, refined, and recycled; and waiting for interlibrary loans or off-line printouts to come.	8	24.24
-	Unavailability of many cited materials in local libraries; cost more for off-line printouts.	2	6.06
-	Lack of descriptors for many databases; little training is available to users; inability to browse		

	subject headings online; hard to browse on screen.	5	15.15
-	Not all databases are updated; many duplications of sources; too narrow scope of some databases.	5	15.15
-	No assurance that retrieved references are comprehensive, exactly matching, and useful.	6	18.18
-	Possibility of downtime and lost information due to failure of power, computers, and telecommunication lines.	2	6.06
-	More work for librarians.	2	6.06
	Sum	88	53.33*
4.	**What are the advantages of using print publications**?		
-	Free of charge for users; no pressure of cost for reviewing and thinking during searching.	11	33.33
-	Easy to use and browse; users familiar with the traditional publications; usually no help is needed; user friendly.	12	36.36
-	Users can have direct and immediate access at any time.	10	30.30
-	Comprehensive -- historical as well as updated references; covering a wide range of topics.	6	18.18
-	Well organized -- alphabetical order by subjects and subheadings; extensive cross references; specific headings such as criticism are provided.	10	30.30
-	Portable; permanent; having publishers' addresses.	4	12.12
-	Quick to have a copy.	2	6.06
-	Places for starting research.	2	6.06
	Sum	57	34.54*

5. **What are the disadvantages of using print publications?**

- Requiring to spend much more time for searching.	15	45.45
- Inconvenient to search multi-volumes, multi-editions, and scattered places.	3	9.09
- Cannot do Boolean searching; may not obtain needed results.	5	15.15
- Lack of cumulation and currency.	6	18.18
- Not easy to match users' terms with indexing terms.	3	9.09
- Involving money and time to update publications in libraries.	3	9.09
- Bulky and cumbersome; have to go to libraries for searching.	6	18.18
- Tedious process; hard to read and understand; users need guidance.	5	15.15
- Delayed and lost publications.	4	12.12
- Incompleted coverage.	5	15.15
Sum	55	33.33*

*Each respondent can give five responses to each question. The possible responses were 33 x 5 = 165. These percentages were calculated by using the formula, Sum / 165 x 100.